

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

OYSTER OPTICS, LLC,

Plaintiff,

v.

CISCO SYSTEMS, INC.,

Defendant.

Case No. 2:20-cv-00211-JRG

JURY TRIAL DEMANDED

DEFENDANT'S RESPONSIVE CLAIM CONSTRUCTION BRIEF UNDER P.R. 4-5(b)

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I. INTRODUCTION

Oyster Optics, LLC (“Oyster”) has confused Cisco’s proposed claim constructions in this case with different proposals made by other parties in other cases, including by the defendant Infinera in *Oyster Optics, LLC v. Infinera Corporation*, Case No. 2:19-cv-00-257-JRG. For one disputed term, Oyster (in red, bolded and underlined font) literally identifies *Infinera*’s proposed construction¹ from 2020 as if it were Cisco’s (which it is not).

Cisco’s proposed constructions are not the same as those proposed by others previously, nor do they rely on the same reasoning. Oyster thus fails to address the substance of Cisco’s proposed claim constructions, as filed in the Joint Claim Construction and Prehearing Statement (Dkt. No. 56). In this and other ways described below, Oyster glosses over the merits of the specific disputed issues now before the Court. Cisco’s proposed constructions are grounded in the intrinsic and extrinsic record, and take into account the prior rulings and arguments in Oyster’s campaign on these patents.

II. BACKGROUND

Oyster presently asserts U.S. Patent Nos. 6,665,500 (“the ’500 Patent”) (Ex. 1), 8,913,898 (“the ’898 Patent”) (Ex. 2), and 10,205,516 (“the ’516 Patent”) (Ex. 3) against Cisco. The ’898 and ’516 Patents are part of the previously litigated “Group 2” family of patents,² which all share the same specification and concepts. Opening Br. 2. The ’898 Patent (but not the later-issued ’516 Patent) was before the Court in Oyster’s prior litigations against Cisco (Case 2:16-cv-01301, 2:18-

¹ Oyster’s lackluster effort is further evidenced by its citations to third parties for Cisco’s proposed claim constructions. For example, regarding “output data,” Oyster uses the heading “Ciena’s Proposed Construction.” Opening Brief at p. 14.

² Oyster’s prior litigations against Cisco included the following three Group 2 patents: the ’898 Patent, and US Patent Nos. 7,620,327 (the “’327 patent”) and 8,374,511 (the “’511 patent”).

cv-00479), which Oyster dismissed with prejudice. Cisco has a pending motion to dismiss the '898 Patent and '516 Patents due to the prior dismissals with prejudice. (Dkt. No. 37).

Judge Gilstrap previously construed terms of the '898 Patent (Case 2:16-CV-1302, Dkt. Nos. 190, 615), leading the parties to stipulate to multiple constructions for the '898 and '516 Patents here. Judge White of the Northern District of California has also construed certain terms of the '898 Patent in *Oyster Optics, LLC, v. Ciena Corporation*, Case No. 4:17-cv-05920 (Dkt. No. 127, August 10, 2020) (Ex. 5). Finally, Magistrate Judge Payne construed the “phase modulate” term for the '500 Patent in *Oyster Optics, LLC v. Infinera Corp.* (Dkt. No. 88, July 23, 2020) (Payne, M.J.) (the “*Infinera II Markman Order*”) (Ex. 4).

III. LEGAL PRINCIPLES

Claim terms are generally given their customary meaning as understood by a person of ordinary skill in the art (“POSITA”) at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). To determine that meaning within the field, the court should look to “those sources available to the public that show what a person of skill in the art would have understood [the] disputed claim language to mean.” *Id.* at 1314 (citation omitted). Those sources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.* (citation omitted).

IV. DISPUTED CONSTRUCTIONS

A. '500 Patent – Terms: Mode and Phase/Amplitude Modulation (claims 1, 16 and 17)

In the chart below, Cisco has bolded the words in its proposed constructions that reflect the disputed issues.

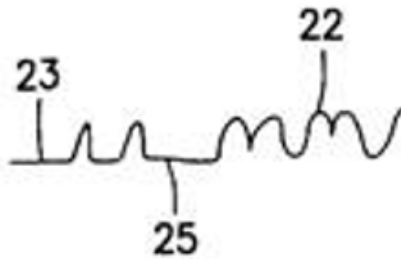
Term	Cisco's Proposed Construction	Oyster's Proposed Construction
Oyster: "phase modulate" and grammatical variants Cisco: "phase modulating" (claims 1, 17)	"altering the phase of light to create an optical signal having a phase that is representative of data, where the phase modulating does not include amplitude modulating"	"alter the phase of light to create an optical signal having a phase that is representative of data"
"phase-modulated optical signals" (claim 1) / "phase modulated optical data" (claim 16)	"optical signals created by phase modulation, not amplitude modulation "	"phase modulate" should be construed as set forth above. Otherwise, no construction necessary.
"amplitude-modulating" (claims 1, 17)	"altering the amplitude of light to create an optical signal having an amplitude that is representative of data, where the amplitude modulating does not include phase modulating "	"amplitude modulate" and variants means "altering the amplitude of light to create an optical signal that is representative of data." Otherwise no construction necessary.
"amplitude-modulated signals" (claim 16) / "amplitude-modulated optical data" (claim 17)	"optical signals created by amplitude modulation, not phase modulation "	"amplitude modulate" should be construed as set forth above. Otherwise, no construction necessary.
"mode" (claims 1, 16, 17)	"period during which at least one specific optical data signal is either amplitude modulated or phase modulated, but not both"	No construction necessary.

Cisco briefs these terms together because they all go to the same issue, which is at the heart of the purported invention of the '500 Patent, as claimed under the amendments that led to allowance of the patent. Cisco has endeavored to present the broadest possible construction of these terms that reasonably gives effect to the prosecution history and preserves some import to patent. In contrast, Oyster's proposals ignore the prosecution history entirely, and then reduce the claims to essentially an optical transmitter having two amorphous phase and/or amplitude modulation modes, leaving the claims with no discernable distinguishing feature.

1. Introduction - Optical Signal, Modulation and Mode

It is important in the context of the '500 Patent to understand the relationship between optical signals and mode. Cisco proposes that a mode is a “period during which at least one specific optical data signal is either amplitude modulated or phase modulated, but not both.”³ A transmitted optical signal is first created by modulation. As follows from the claim language, optical signals (i.e. modulated signals) are transmitted within a “mode.” The prosecution history instructs that the distinguishing feature of the purported invention was that it had two modes, separated in time from one another, in which an optical signal was either amplitude modulated or phase modulated, but not both. In understanding the intrinsic record and Cisco’s proposed constructions, it is important to understand that optical signals can be combined to form a combined signal which can be transmitted in a given mode.

Figure 2 (reproduced in part below) of the '500 Patent is illustrative.



The specification describes that “Signal 25 in FIG. 2 is shown as a **combination** of amplitude-modulated signal 23 and phase-modulated signal 22,” which occurs for example when

³ Notably, Oyster declined to brief “mode” as it is a disputed term and instead lumps the term in with the phase and amplitude modulating terms.

packets with different modulation “are sent one after another.” Ex. 1 at 7:62-65 (bold added).⁴ As to the term “mode,” while the specification refers to an “amplitude-modulated transmission mode” and a “phase-modulated transmission mode,” it also states “both a phase and amplitude modulated transmission mode” (2:42-44). A mode during which a combined signal like signal 25 is transmitted reflects an example of a mode that uses both phase and amplitude modulation.

Cisco’s proposal for “mode” makes clear that a “mode” of the purported invention will still distinguish the prior art, consistent with the prosecution history discussed below, if the device or method generates at least one specific optical data signal that is created by either amplitude modulation alone or phase modulation alone. For example, in the signal 25 of Fig. 2, one can still identify a specific optical data signal (either signal 23 or 22) that satisfies Cisco’s construction because there is at least one that is generated with the feature that Oyster used to distinguish the prior art and gain allowance, *i.e.*, at least one optical data signal created by the modulation format, alone, called for in the claims. In sum, a mode is a period of transmission having at least one of the prior-art distinguishing modulation formats required by the prosecution disclaimer discussed below.

2. Oyster Does Not Address Cisco’s Constructions

Oyster frames its arguments on the generic term “phase modulate” and invites the Court to overlook the rest of Cisco’s arguments. Oyster mistakenly briefed Infinera’s proposed construction from the prior case⁵ — not Cisco’s construction. Whereas Infinera sought to apply

⁴ Signals 22 and 23 are separate phase- and amplitude-modulated signals transmitted in sequence to form combined signal 25, which is an example of the patent’s mixed-mode modulation.

⁵ See Ex. 4 at 7.

Judge Gilstrap’s construction (based on the Group 2 Patents) to the ’500 Patent, Cisco does not. Consistent with this Court’s reasoning in *Infinera II Markman* Order, Cisco recognizes that a different prosecution history and specification led to a particular construction of the phase modulate term for the Group 2 Patents.

Oyster’s treatment of Cisco’s constructions makes much of its Opening Brief confusing, if not irrelevant. For example, Oyster incorrectly contends that “[t]he sole dispute between [sic] is whether the construction of ‘phase modulation’ should ‘exclude[] use of amplitude modulation,’ and vice-versa—whether amplitude modulation excludes phase modulation. This exact dispute was recently presented to this Court in the *Infinera* action, and it ruled in Oyster’s favor.” Opening Br. 8. To the contrary, Cisco’s proposed construction has critical differences from the *Infinera* construction rejected by this Court.

The dispute here does not center on whether any use of phase modulation during a “mode” excludes any use of amplitude modulation (or vice-versa) during that mode. Instead, the point of Cisco’s construction is that for any given optical signal (i.e., for any given signal created by the act of altering light (i.e. modulating) to represent a given data stream), the claim refers only to *phase* modulation for ***that given signal*** (regardless of whether the transmitter can also be creating a different signal corresponding to a different data stream using amplitude modulation during that same mode). This is compelled by the specification and the prosecution history, and is the only way to give each claim element meaning.

Unlike *Infinera*’s proposal that *Infinera* briefed previously, however, Cisco’s proposals for these terms do not require that the claimed modulating (e.g. “phase modulating” in the “first mode” of claim 1) be the *only* form of modulating used during the claimed mode. Instead, and as described in the specification, Cisco’s proposed constructions permit both amplitude modulation

and phase modulation of light to occur within a given “mode” – but it would correspond to *two different data streams*, exactly as set forth in the intrinsic record. This is consistent with the claims (e.g., claims 18 and 19) and specification (e.g. 2:41-46, 4:36-42, 7:62-67, Fig 2). Infinera’s proposal was overly narrow because it urged that the mere use of “phase modulation” entirely excluded the use of amplitude modulation. Cisco’s proposed constructions are broader while giving effect to the prosecution history discussed below. Referring back to Figure 2 discussed above, Infinera’s construction would have excluded “combination” signal 25 because that combined signal has both types of modulation. That is, under Infinera’s rejected construction, the “use” of phase modulation for one data stream would exclude the use of amplitude modulation for a different data stream, thus excluding “combination” signal 25. None of Cisco’s proposed constructions, on the other hand, would exclude “combination” signal 25. True to this disclosure, Cisco’s construction maps onto the phase-modulated signal 22 that are separate from the amplitude-modulated signal 23.

The dependent claims further illustrate how phase-modulated signals can co-exist with amplitude-modulated signals in the same mode, but for separate signals. Claims 17-19, for example, consider a “first transmission mode” during which a system generates combination signal 25. The act of phase-modulating (not amplitude modulating) generating the specific phase-modulated signal 22 maps to the phase modulating recited to occur within the first transmission mode. The first transmission mode in claim 17 can also include other signals that are amplitude-modulated such as signal 23 – resulting in a “combination” signal such as signal 25. Because at least phase modulated signal 22 would have the benefits touted in the specification for phase-modulated signals, and satisfy the prosecution history’s requirement for a signal that is not both phase and amplitude modulated at the same time, the claim recitations directed to phase

modulation, modes, and separation in time are all given meaning. Yet the claim is still broad enough to encompass other modulation such as the amplitude-modulated signal 23, consistent with the specification. Nonetheless, a similar “combination” signal 25 could also be generated in the second transmission mode of claim 17, so long as it has at least one optical data signal (e.g. amplitude-modulated signal 23) that satisfies the amplitude modulating recited in claim 17 consistent with the prosecution history. For claim 19, signals 23 and 22 together show how the second transmission mode includes light that is “both amplitude-modulated and phase modulated” (i.e., a “combination” signal). This allows for the benefits of the purported invention, including scenarios such as described at 4:36-42 (unrelated other signals can be present). Critically, claim 19 does *not* recite that the “phase-modulating” in claim 17 includes amplitude-modulating, but just that the “first transmission **mode**” can also have amplitude-modulating within it.

3. Cisco’s Construction Is Compelled by the Intrinsic Record

a. ’500 Patent Prosecution History

The prosecution history is of critical import to the allowance of the ’500 Patent and it should be given effect by adopting Cisco’s constructions. On March 3, 2003, the USPTO issued a non-final office action rejecting Oyster’s initial claims as being anticipated and obvious over the prior art. *See* Ex. 6 at 102-115. In response, Oyster amended its claims to distinguish the art. *Id.* at 117-126. The amendment and arguments overcame the art, and the ’500 Patent issued. *Id.* at 132. The independent claims were amended as follows:

Claim 1 (currently amended) An optical data transmitter comprising:
~~at least one light source~~ a laser;
 a phase modulator for phase modulating light from the light source; and
 a controller having an input for receiving an electronic data stream, the controller in a first mode controlling the phase modulator so as to create phase-modulated optical signals in the light from the laser as a function of the electronic data stream and the controller in a second alternate mode amplitude-modulating the light from the laser as a function of the electronic data stream, the first mode and the second mode occurring at different times.

Id. at 118.

Claim 16 (currently amended): A dual-mode optical transmission system comprising:

a transmitter having a laser for transmitting amplitude-modulated signals in a first mode and phase-modulated signals in a second mode and a controller for switching an output of the laser between the first mode and the second mode, the second mode occurring at a different time than the first mode;

an optical fiber connected to the transmitter; and

a receiver having an interferometer being connected to the optical fiber.

Claim 17 (currently amended): A method for transmitting optical data in two modes comprising the steps of:

phase modulating light from ~~at least one light source~~ a laser during a first transmission mode so as to transmit phase-modulated optical data; and

amplitude modulating light from the ~~at least one light source~~ laser during a second alternate transmission mode so as to transmit amplitude-modulated optical data, the second alternate transmission mode occurring at a time separate from the first transmission mode.

Id. at 120.

Oyster used the amendment in its accompanying arguments to distinguish the prior art, which taught transmitting signals that were both amplitude and phase modulated. *See* Ex. 7 (U.S. 6,122,086 to Djupsjobacka) at Fig. 1, 2:50-54. Oyster argued: “Djupsjobacka discloses **simultaneous** transmission of **optical signals in AM or PM mode, the same signal being sent in AM and PM mode at the same time.**” Ex. 6 at 122 (citing Djupsjobacka, 2:50-54). Oyster likewise distinguished its other independent claims by disparaging Djupsjobacka as disclosing “simultaneous transmission of optical signals in AM and PM, **the same signal** being sent in AM and PM mode **at the same time**.... Moreover, Djupsjobacka ... transmits AM and PM signals **at exactly the same time, and not in two different time** modes, as now claimed.” *Id.* at 122-123 (emphasis added).

In other words, Oyster disparaged the prior art for sending “the same signal” using both AM (amplitude modulation) and PM (phase modulation) at the same time, while presenting claim

amendments directed to separating the claimed modulation types in time. The amendment and arguments seized on the application's teaching, disclosed in at least some embodiments, of transmitting purely amplitude-modulated signals at one point in time, and purely phase-modulated signals at a different point in time – and then altering these to create a “combined signal,” i.e., combining a signal that modulates one data stream through phase modulation with a different signal that modulates a different data stream using amplitude modulation. *See* Ex. 1, '500 Patent, Fig. 2, 7:62-67 (amplitude-modulated signal 23 followed “one after another” with phase-modulated signal 22). The amendment and argument constitutes a clear and unmistakable disclaimer of systems that simultaneously amplitude and phase modulate a signal – in other words, that uses both phase and amplitude modulation to represent a single data stream.

Cisco's proposals give effect to the prosecution history, while remaining in harmony with the other claims in the patent, including claims 18 and 19. For example, under Cisco's construction of “mode” — “period during which at least one specific optical data signal is either amplitude modulated or phase modulated, but not both.” — one identifiable optical data signal is required, but it can be either amplitude modulated or just phase modulated (for example a phase modulated signal 22 or 23 from Fig. 2). So long as each mode has at least one such data signal, that data signal will satisfy the modulation related terms of that mode, staying true to Oyster's amendment and argument that secured Oyster the '500 Patent.

Cisco notes that the Court expressed concern in its previous claim construction ruling regarding “whether the two modes are mutually exclusive in their operating characteristics.” Ex. 4 at p. 12. “Notably, there is no sound reason for why the added language would only affect the phase-modulation mode. Put another way, if the applicant's amendment had the effect proffered by Defendants, it would not only exclude any *amplitude* modulation during the *phase*-modulation

mode, but any *phase* modulation during the *amplitude*-modulation mode. Yet Defendants agree the latter is not required by the claims.” *Id.* (emphasis in original).

Cisco’s proposed construction resolves this concern, consistent with the intrinsic record. To be clear, the claims do not recite an “amplitude modulation mode” or a “phase modulation mode” per se, but more broadly claim two modes, and separately call out specific types of modulation that need to at least be present at some point within each mode. Accordingly, unlike Infinera, Cisco does not argue that the claims have an exclusive “phase modulation mode.” Instead, Cisco’s point is that a given signal corresponding to a given data stream must be either amplitude modulated or phase modulated, but those two signals (corresponding to two different data streams) can be combined into a signal (like signal 25 in the specification) that transmits the two different data streams (one via phase modulation and the other via amplitude modulation – combined together). What is never disclosed anywhere in the patents – and was disclaimed in the prosecution history – is the notion of modulating a single data stream using both amplitude and phase modulation (i.e., representing a bit or group of bits by using both the phase and amplitude of the signal). Cisco’s proposal thus applies the prosecution disclaimer equally, as it should, to phase modulating and amplitude modulating.

b. The Specification Supports Cisco’s Proposed Constructions

Cisco’s constructions are also supported by the specification. Consistent with the embodiments relied upon to gain allowance, the specification repeatedly emphasized optical signals that were **either** phase-modulated **or** amplitude-modulated:

An object of the present invention is to provide a transmitter for transmitting **either** phase-modulated **or** amplitude-modulated optical signals. An alternate or additional **object of the present invention** is to provide a receiver for receiving **either** phase-modulated **or** amplitude-modulated optical signals.

’500 Patent at 2:26-28 (emphasis added).

The dichotomy was important as the background of the patent sets up that amplitude modulated signals were susceptible to tapping (in the security context, like a wiretap):

However, optical fiber may be tapped. . . . Amplitude-modulated optical signals, with their ease of detection from a photodiode, require that only a small amount of energy be tapped and passed through the photodiode in order to be converted into a tapped electronic data stream.

'500 Patent, 1:34-38. In contrast, the specification considered phase modulation, with its constant amplitude (i.e. no-amplitude modulation) and specialized receiver (interferometer with specific delay) as providing for secure transmission:

During the **alternate phase-modulation** mode, the amplitude controller 88 directs the laser to emit ... **non-pulsed light**. . . . This signal provides a **secure data transmission** mode. The phase-modulated **signal must be read with an interferometer** having a **proper delay** path, and **any tap** to obtain enough light to read the phase-modulated signal **is easily detectable**.

'500 Patent at 5:34-47. This contrast between “amplitude modulated signals” as conventional, non-secure signals, and phase-modulated signals as new, secure signals, runs throughout the specification. *See, e.g.*, '500 Patent 2:50-52 (“The first mode is thus a highly secure data transmission mode”); 3:4-5 (“amplitude-modulated optical signals sent by the transmitter can be read [by] common receivers”); 6:10-11 (“transmitter ... is backwards-compatible with existing receivers in the amplitude-modulated mode”); 7:52-53 (“change between secure mode and the amplitude-modulated mode”). The specification touts backwards compatibility and security based price differentiation as the benefits of being able to switch between the modulation formats. *Id.* at 6:10-11 (“transmitter ... is backwards-compatible with existing receivers in the amplitude-modulated mode”); 8:13-17 (“telecommunications service provider thus could charge certain customers for an enhanced secure mode service . . . while permitting other customers to send data in a non-secure mode . . .”). Accordingly, the '500 Patent teaches “**switching** between the phase

modulating and the amplitude modulating steps,” (*id.* at 4:27-28), with phase and amplitude modulation being used at different times (*id.* at 4:32-35).

Critically, the specification never teaches, shows or describes a modulator that simultaneously performs the act of modulating the phase of light while also performing the act of modulating the amplitude of the light for the same signal (i.e., the same data signal), at the same time. In contrast, the specification teaches a phase modulator that performs just phase modulating, and an amplitude modulator that performs just amplitude modulating, and switching between the two to create a “combination” signal (which contains two different data streams – one phase-modulated and the other amplitude-modulated).

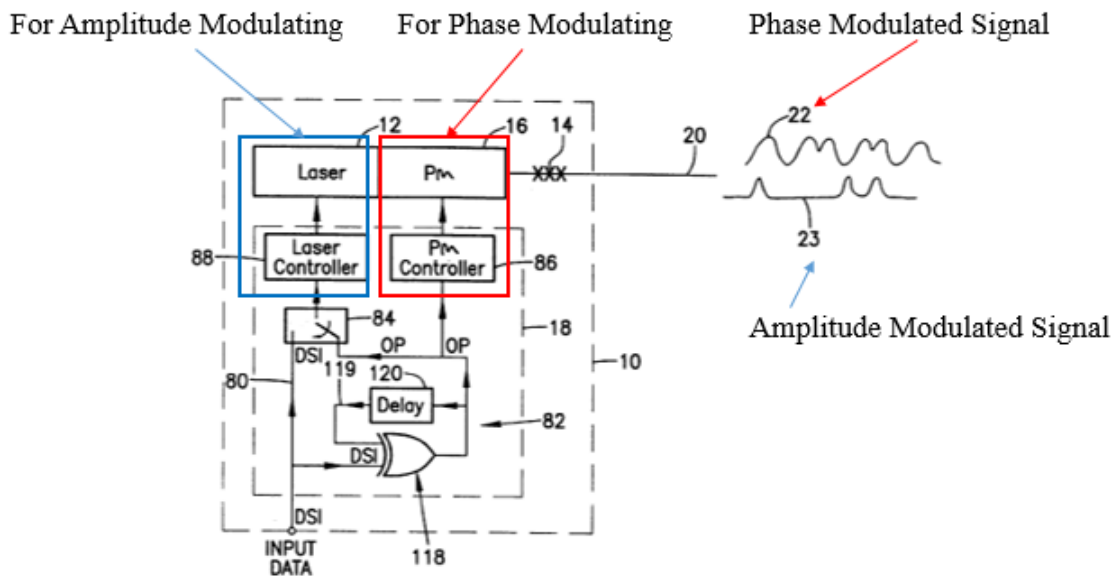


Fig. 1

Oyster’s disclosure and use of these two modulation techniques is consistent with the customary meaning in the art at the time. For example, the textbook *Fiber-Optic Communication Systems* (1997) by Govind Agrawal (Ex. 8 OYSTERDEFS2_002297-2321) describes amplitude-shift keying (ASK), a common form of amplitude modulation, as “modulating the amplitude while

keeping the phase constant.” *Id.* at 2304. It likewise describes phase-shift keying (PSK) modulation, a common form of phase modulation, as “modulating the phase while keeping the amplitude constant.” *Id.* at 2306-7. This usage is consistent with the intrinsic evidence discussed above.

Likewise, the specification’s reference at 2:41-47 to a “phase **and** amplitude modulated transmission mode” does not teach modulating the *same* signal (i.e., corresponding to a data stream) at literally the same time with both types of modulation (in other words, representing the same piece of data with both an amplitude and phase change), as opposed to using different modulation formats for different signals transmitted at different times within a mixed format mode. Far from disclosing a new modulation technology that BOTH amplitude modulates and phase modulates the same piece of data, in the one instance where the specification devotes a few sentences to describing the possibility of a mixed mode (i.e. a combination of phased and amplitude modulated signals), it downplays the significance of the second modulation format:

It should be understood however that, while phase-modulated signals are preferred in the secure transmission mode, **under certain circumstances a mixture** of phase and amplitude modulation **could be possible**. For example, **amplitude modulated signals not related to the input optical data stream** could be transmitted **during** the secure phase-modulation mode without necessarily affecting security.

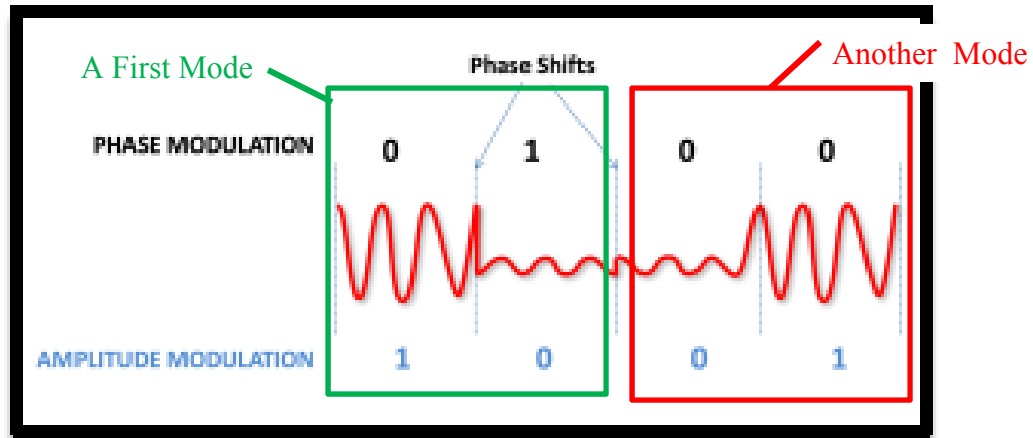
’500 Patent, 4:36-42. This portion of the specification teaches using amplitude modulation for a signal “**not related**” to the data stream being phase modulated, as opposed to simultaneous modulation of the exact same signal, at the same time, using both amplitude and phase modulation. This does **not** teach that “phase modulating” the input optical data stream is or can include amplitude modulating. Using signal 25 of Fig. 2 to illustrate the point, signal 23 (amplitude modulation) could be used for control or other housekeeping information, and then the rest of the mode could consist of phase-modulated signal 22 to carry a sensitive data stream.

To the extent Oyster argues that the specification discloses or suggests an embodiment with transmission of an optical data signal that is both amplitude and phase modulated, such that the same signal uses both modulation types at the same time, Oyster gave up that embodiment during prosecution to secure its patent. As specifications are written before examination, it is not surprising for an applicant to describe subject matter in an application that, upon examination, is disclaimed. *See North Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1345–46 (Fed. Cir. 2005) (excluding certain embodiments based on disclaimer during prosecution).

c. Oyster’s Proposal Renders Claim Language Meaningless

Oyster states that “in the context of the ’500 Patent, **phase modulation and amplitude modulation** are not mutually exclusive. They **can both be used** by the same system, and indeed **at exactly the same time**.” Opening Br. 9 (emphasis added). This is in direct contradiction to the prosecution history disclaimer discussed above where the prior art taught using phase modulation and amplitude modulation at the same time.

Oyster’s proposal has the unsatisfactory consequence of making the first and second modes of the claims be, for all intents and purposes, the same. That renders the claim language and structure much ado about nothing. To illustrate the point, consider the figure used in Oyster’s Opening Brief (at 6) that depicts a series of four optical signals, each divided in time by a vertical blue line. Each of the four signals illustrates a “symbol,” i.e., the smallest optical signal able to represent a discrete piece of data. Oyster’s figure is reproduced below but with green and red annotations added.



Opening Br. 6 (annotations added). Note that each of the four transmitted signals are shown having both amplitude and phase modulation. However, under a construction where the claim's "amplitude modulating" can include phase modulating, and the claim's "phase modulating" can include amplitude modulating, the structure and limitations of the claim as having two distinct modes and transitioning between them washes out, leading to the extreme result (as compared to the claim language, the prosecution history and the benefits of the two modes described in the patent) that each of the 4 optical data signals satisfies the requirements of both modes and thus any of the signals can be arbitrarily grouped into the two modes of the claim—even though they are the same. As such, while the exact same modulation is being used in the green and red boxes above, they arguably satisfy Oyster's proposed construction. The same would hold true for any other grouping. The specification, claims, and prosecution history all call for a more meaningful distinction between the amplitude modulating required in one mode and the phase modulating required in the different mode. Cisco thus respectfully requests rejection of Oyster's proposal.

4. Oyster's Remaining Arguments Fail

a. Claim Differentiation Is Consistent with Cisco's Proposed Construction

Oyster argues that Cisco's proposed construction "must also be rejected under the doctrine of claim differentiation," referring to Claim 18. Opening Br. 10. Oyster misunderstands how Cisco's construction reconciles Claim 18.

Claims 17 and 18 are as follows:

17. A method for transmitting optical data in two modes comprising the steps of:

phase modulating light from a laser during a first transmission mode so as to transmit phase-modulated optical data; and

amplitude modulating light from the laser during a second alternate transmission mode so as to transmit amplitude-modulated optical data, the second alternate transmission mode occurring at a time separate from the first transmission mode.

18. The method as recited in claim 17 wherein during the first transmission mode the light is not amplitude-modulated.

What Oyster overlooks is that Claim 18 allows for the "first transmission mode" to have periods of time within it that utilize different modulation formats. Claim 17 does not require, for example, that the phase-modulating of light occur throughout the duration of the "first transmission mode." Referring to the Fig. 2 embodiment, for example, during the "first transmission mode," light from a laser can be used for amplitude modulated signals 23 and phase-modulated signals 22 "sent one after another." '500 Patent, 7:63-65. Thus, Claim 18 just covers the scenario where none of the light during the mode is "amplitude modulated," consistent with the scope of Claim 17.

Nothing about Cisco's proposed constructions are inconsistent with that. However, Cisco's proposals still give effect to the prosecution history because while other modulation can be present during a mode, there has to be at least one optical data signal that has the characteristic used to secure the patent during prosecution, namely that there has to be at least one signal wherein

the “amplitude modulating” or “phase modulating” recited is not done at the same time, for that same signal. Thus, Cisco’s proposals are that for that specific signal, it is amplitude modulated, not phase modulated and vice versa for at least the claimed modulation for that signal.

These constructions do not render claim 18 superfluous, and are fully consistent with the prosecution history. Regardless, the law is well settled that claim differentiation arguments are, at best, a useful analytical tool, but that a plaintiff cannot rewrite the specification and undo the disavowals made there based on claim differentiation. *Fenner Invest., Ltd. v. Cellco P’ship*, 778 F.3d 1320, 1327 (Fed. Cir. 2015). Here, Oyster plainly disparaged systems that send the same signal using amplitude modulation and phase modulation at the same time, and Cisco’s construction gives effect to the prosecution history without disturbing Claim 18 or claim differentiation.

B. ’898 Patent

1. Term: A Transmitter Having a Laser, a Modulator, and a Controller (claims 1, 14)

Cisco’s Proposed Construction	Oyster’s Proposed Construction
“transmitter containing a laser, a modulator, and a controller”	No construction necessary.

Turning to the ’898 Patent, this dispute concerns whether the claims require the laser, modulator, and controller to be located within the transmitter. The plain language of the claims as well as the rest of the intrinsic record, including IPR disclaimers, confirm Cisco’s proposed construction is correct. In an attempt to take a second bite of the apple, Oyster reargues its exact position that it took in the Northern District of California in *Oyster Optics, LLC, v. Ciena Corporation*, Case No. 4:17-cv-05920 (“*Ciena*”). In *Ciena*, Judge White explicitly rejected Oyster’s arguments (Opening Br. 12-14) here that the specification does not disavow claim scope and that there was no prosecution history disclaimer.

a. The Specification Supports Cisco’s Proposed Construction

The specification confirms that the claimed components are within the transmitter. The specification focuses on enabling easy replacement of existing cards with enhanced security cards, which is both responsive to the prior art deficiency the ’898 Patent identifies and repeats as the object of the invention. *See, e.g.*, Ex. 2 at 2:26-29 (citing need to have a swappable transceiver card); 3:9-18 (providing a swappable transceiver card having “the OTDR and energy level detector parts along with the optical transmitter and receiver components . . . all on one card compatible with most existing box dimensions”); 6:36-42 (same); 4:30-43 (placing relevant components on the transmitter); Fig. 2 (same).

Judge White likewise confirmed that the specification supports Cisco’s proposed construction. In the final claim construction order in *Ciena*, Judge White reasoned:

Moreover, the specification shows the recited elements located on the transmitter, and further states that the transceiver card is designed to be swappable, which would not be possible if components were located outside of the card. (See ’898 Patent at Fig. 2, 2:26-29, 6:36-42, 4:32-43.) Further, the specification states that “[t]he laser amplitude modulator and laser . . . define a transmitter for transmitting the optical signal over an optical fiber.” (Id. at 1:30-32.) The specification thus suggests that the laser and modulator must be located on the transmitter (as the defining elements of that transmitter) and that the controller must be located, at least, on the transceiver card.

Ex. 5 at 21. Judge White was not importing limitations into the claims. Rather, the specification is unequivocal that the laser, modulator and controller must be located on the transmitter.

b. Prosecution History Disclaimer Supports Cisco’s Proposed Construction

Oyster’s repeated statements during its prosecution of various IPRs clearly show prosecution history disclaimer. Oyster’s IPR statements confirm “having” means “located within” as Oyster disavowed any possible broader scope for the disputed phrase. During IPR, Oyster argued that a transmitter “having” a component means a transmitter with that component placed

on it. Ex. 9 at 41 (arguing that Petitioners did not address “the requirement of placing a laser on the claimed ‘transceiver card’”). Oyster also argued that a transmitter “having” a component excludes an external component that is separate from or not part of the transmitter. Ex. 10 at 20-21 (The prior art’s “transmitter does not include a light source” because the prior art’s laser “input light” is “from an external source” so it not “part of” the prior art’s transmitter, rather it is “separate from” the transmitter); *see also id.* at 22; Ex. 11 at 34-36 (same); Ex. 12 at 23-25 (The prior art’s transmitter “excludes a light source” because it “is external to the transmitter”); Ex. 13 at 26-27 (same). The PTAB agreed with Oyster’s IPR statements and explained that “having” means the components are “within the transmitter itself.” Ex. 14 at 8. The PTAB then denied institution because the petition did “not sufficiently account[] for [a] laser within the transmitter...” *Id.* at 21, 23, 33. In another institution decision, the PTAB clarified:

A pertinent dictionary definition of “having” is “to hold, include, or contain as a part or whole <the car *has* power brakes> <April *has* 30 days>” *Webster’s Tenth Collegiate Dictionary* 533 (1998) [] (emphases in original). Therefore, with this definition, a transmitter having a laser would hold, include, or *contain* the laser.

Ex. 15 at 17-18.

The PTAB found that the transmitter having a laser, a modulator, and a controller “must also be on the transceiver card.” Ex. 16 at 23. In other words, Oyster’s statements to the PTAB and the PTAB’s interpretation of Oyster’s statements confirm that the various components are within the transceiver card because they are on the card. Thus, the intrinsic record fully supports Cisco’s proposed construction and squarely contradicts Oyster’s arguments that no construction is necessary, that no disavowal or lexicography exists, and that Cisco’s construction improperly narrows the disputed phrase.

Judge White’s final claim construction order in *Ciena* further supports a finding of prosecution history disclaimer:

During the IPRs for the '898 and '327 Patents, Oyster distinguished prior art that had an external laser by arguing that the claims required the laser to be located on the transmitter. (See Dkt. No. 100-12 ("IPR2017-01870 Prelim. Resp.") at 20-21; Dkt. No. 100-17 ("IPR2017-01871 Prelim. Resp.") at 23-25.) The examiner agreed with Oyster's interpretations, citing a dictionary that defined "having" as "to hold, include, or contain as a part or whole." (IPR2018-00070 Institution Decision at 17.) [Ciena] thus argues that disclaimer, in addition to the ordinary meaning, limits "having" to "including within." Moreover, Oyster interpreted "having" in the IPRs as excluding external elements. (IPR2017-01871 Prelim. Resp. at 21.) Finally, the specification "defines" transmitters through the components. ('898 Patent 1:30-32.) Thus, to the extent that some parts of the transmitter may extend beyond its boundaries, they must still be substantially "contained" by the transmitter to constitute the same component.

Ex. 5 at 21-22. Oyster's disavowal of claim scope in order to overcome the prior art makes Cisco's proposed construction proper as evidenced by the intrinsic record. Accordingly, Cisco's proposed construction should be adopted.

2. Terms: Output Data / Input Data (claims 1, 14)

Term	Cisco's Proposed Construction	Oyster's Proposed Construction
"output data"	"the data encoded in the second optical signal and outputted by the receiver"	"data outputted by the receiver"
"input data"	"the data inputted to the transmitter and encoded in the first optical signal "	"data inputted to the transmitter"

The dispute on the input / output data terms centers on whether data is encoded in their respective optical signals. No parties raised this issue in the previous Eastern District of Texas litigations brought by Oyster. Again, Oyster improperly conflates Cisco's constructions with different issues previously raised by other parties. For example, for "output data," Oyster argues that the Court "rejected Infinera's similar argument that 'output data' should be construed as 'an electronic data stream recovered from the second optical signal.'" Opening Br. 14. Similarly, for "input data," Oyster argues, "Cisco's proposal is an obvious attempt to import limitations into the claims. Noteworthy, nothing in the claims or specification requires that the input data 'be encoded in the first optical signal' as Cisco suggests." *Id.* at p. 17. These arguments are red-herrings.

Cisco's proposed constructions are consistent with this Court's previous claim construction orders **and** Judge White's claim construction order in *Ciena*. As Judge White accurately noted, there were two distinct issues for the "data" terms: "The parties have two disputes: first, the parties disagree whether the optical signals must be converted to 'electronic form'⁶," and second, *Ciena* seeks clarification that the output data reflects the data encoded in the second optical signal." Ex. 5 at 17. It was the former issue that was before this Court (Mag. J. Payne), not the latter. Judge White essentially agreed with this Court on the former issue, and then took up the latter as a matter of first impression. Judge White construed "output data" to mean "the data encoded in the second optical signal." *Id.* at 18. Cisco reasonably seeks to supplement the construction of these terms consistent with Judge White's construction, as indicated in the bold portion of the box above.

a. Cisco's Proposed Construction Adopts the Court's and Judge White's Prior Constructions

Cisco's proposed constructions for the data terms are in harmony with the Court's and Judge White's previous constructions. The Court in *Infinera I* construed "output data" to mean "data outputted by the receiver." Ex. 17 at 12. Judge White construed "output data" to mean "the data encoded in the second optical signal." Ex. 5 at 18. Cisco's proposed construction mirrors both of these constructions for "output data" and vice versa for "input data."

b. Cisco's Proposed Constructions Are Supported by the Intrinsic Record

⁶ In *Infinera I*, the Court stated "Defendant has failed to identify any intrinsic evidence compelling that 'output data' must be in electronic form, and Defendant has not adequately supported its assertion that a person of ordinary skill in the art would reach such a conclusion based on surrounding claim language. Instead, as discussed above, the recited disclosure of 'convert[ing] the optical signal from optical to electronic form to recover the electronic data stream' relates to a preferred embodiment and should not be imported into the claims." Ex. 17 at 11. Judge White agreed with the Court in *Infinera I* and did not limit the optical signals where they must be converted to electronic form. *See* Ex. 5 at 17.

“Output data” refers to data encoded in the second optical signal and “input data” refers to data encoded in the first optical signal. The specification explains that traditional transceivers transmit optical signals “representative of electronic data stream” and use a photodiode to “convert the optical signals back into the electronic data stream” at the receiver. ’898 Patent at 1:27-35. The embodiments show that the receiver “converts the optical signal from optical to electronic form to recover the electronic data stream 34.” *Id.* at Fig. 2, 5:2-5. The claims similarly recite “generat[ing] a first optical signal as a function of the input data” and “convert[ing] the second optical signal to output data” (where, the second optical signal is also a “function” of the data). *Id.* at claims 1, 14; *accord id.* at Fig. 2.

c. Oyster’s Analysis Supports Cisco’s Proposed Constructions

Oyster’s technology section and subsequent statements in its Opening Brief also support Cisco’s proposed constructions. For example, Oyster states, “[t]ransmitters and receivers are important components of these systems, because they perform key aspects of the **encoding**, transmitting, receiving, and **decoding** functions **for optical signals**.” Opening Br. At 4 (emphases added). Transmitters and receivers **in the claimed invention** encode and decode optical signals. “By the plain teaching of the claims and specification, the **input data need necessarily be encoded** in the first optical signal.” *Id.* at p. 17 (emphasis added).

Oyster’s statements give weight to Cisco’s proposed constructions, which are supported by the intrinsic record. Data must be encoded if it is transmitted and received in the claimed invention. Accordingly, Cisco’s proposed constructions should be adopted.

C. ’516 Patent — Term: Voltage (claim 1)

Cisco’s Proposed Construction	Oyster’s Proposed Construction
“electric pressure that causes current to flow in a circuit”	Plain and ordinary meaning, or, in the alternative, “difference in electrical potential expressed in volts.”

The parties propose significantly different constructions for “voltage.” Notably, Oyster does not dispute that Cisco’s construction is correct. Rather, Oyster’s proposal only muddies the waters as to the meaning of “voltage” in the context of the ’516 Patent. A lay person would not know what “difference in electrical potential” means, while the phrase “expressed in volts” is confusingly suggestive of abstractions of voltage as opposed to the voltage itself. Oyster’s construction is technical jargon that does not help the jury understand the term.

The issue for “voltage” centers on the appropriate context for the term as used in the ’516 Patent. As “voltage” is used in the ’516 Patent, it is referring to the electrical property itself, *i.e.*, something that can deliver a physical shock.

Cisco’s construction is a plain and ordinary meaning of the term as confirmed by extrinsic evidence. Ex. 18, *Webster’s New World College Dictionary, 3rd Ed.* (1997). “Voltage” is defined as an “electromotive force.” *Id.* at 1496. “Electromotive force” in turn is defined as “**electric pressure that causes or tends to cause a current to flow in a circuit.**” *Id.* at 437. Likewise, Newton’s Telecom Dictionary defines “voltage” by explaining that “[e]lectricity is essentially a flow of electrons. . . . For this movement of electrons to occur there must be ‘**pressure,**’ just as there must be pressure in the flow of water. **The pressure under which a flow of electrons moves through a gadget is called the electric voltage.**” Ex. 19, *Newton’s Telecom Dictionary, 11th Ed.* (1996) at 659. A textbook on electronic components similarly explains voltage: “Current can flow through a wire or piece of electric equipment only while **a pressure is applied to push the current through the wire. . . . This pressure is referred to as voltage.**” Ex. 20, *Horowitz, Elementary Electricity and Electronics Component by Component* (1986) at 12. Thus, Cisco proposal is not only accurate, but is easy to understand conceptually. Cisco’s construction is consistent with the intrinsic evidence as understood by a POSITA, as explained below.

1. The Intrinsic and Extrinsic Evidence Support Cisco’s Proposed Construction

The surrounding language of Claim 1 is instructive as to the meaning of “voltage” as used in the claims and specification.

1. A telecommunications apparatus, comprising:
an optical receiver affixed to a printed circuit board and configured to receive an optical data signal from an optical fiber of an optical fiber telecommunications system;
an energy level detector circuit, optically coupled to the optical fiber upstream from the optical receiver, wherein the energy level detector circuit is configured to monitor an energy level of the optical data signal and generate an alarm based on the energy level and one or more energy level thresholds, wherein the energy level detector circuit includes:
a photodetector to generate a photodetector voltage indicative of an energy level of the optical data signal; and
*one or more **comparators** corresponding to the one or more energy level thresholds, wherein each of the one or more **comparators**:*
*includes a first input **coupled to an output voltage** indicative of the **photodetector voltage**;*
*includes a second input **coupled to a corresponding reference voltage**; and*
*generates a **comparator signal** indicative of a comparison between the **corresponding reference voltage and the output voltage**.*

Coupling voltages to comparator inputs to compare them is understood by a person of ordinary skill in the art (“POSITA”) to refer to coupling voltage — as an electrical phenomenon — in a circuit. This is evident from the common usage of the terms “comparator” and “coupling.”

a. Comparators

By way of background, a “comparator” compares one voltage signal with another and produces an output signal based on the comparison of the magnitude of the input signals. The specification mirrors the comparator and voltage coupling described in the claims. The specification describes:

“As shown in FIG. 3, **comparator 156** will transition from a low to high output **when the voltage output** from the logarithmic or linear amplifier 155 **exceeds the reference voltage** established by the digital to analog (D to A) converter 158. Conversely, comparator 157 will transition from a low to high output when the

voltage output from the logarithmic or linear amplifier 155 falls below the reference voltage established by the digital to analog converter 159.”

’516 Patent at 6:7-16. The two comparators (156, 157) are shown in Fig. 3 below.

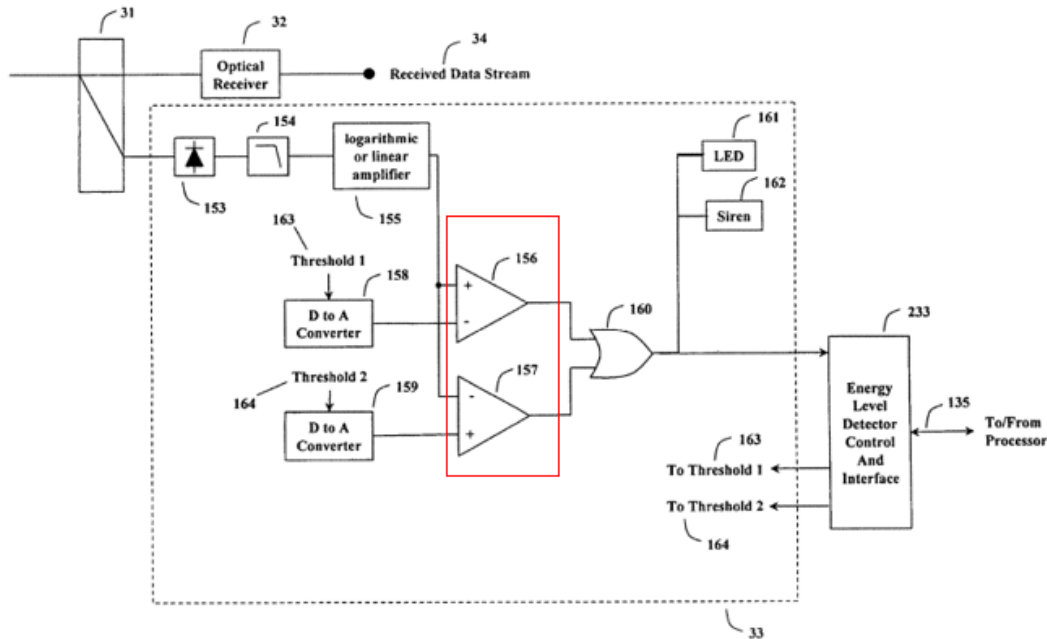
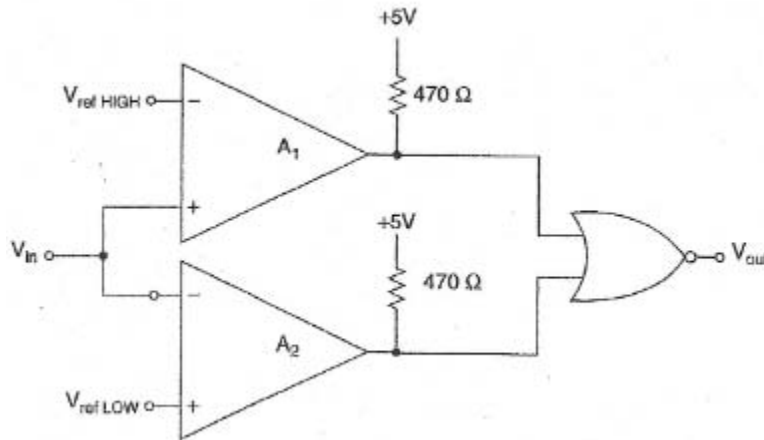
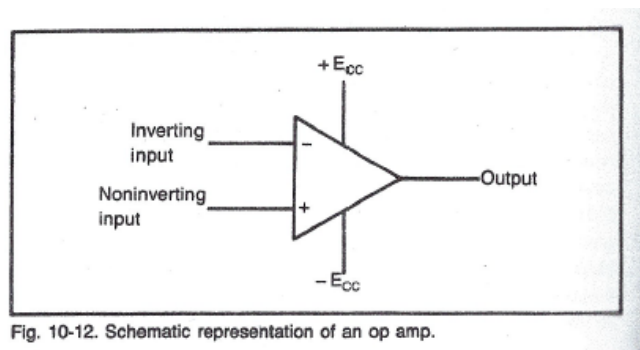


Figure 3

A comparator compares the voltages coupled to its inputs and outputs a signal based on which one of those inputs is greater. A POSITA understood this to be commonplace. For example, *Analog Filter and Circuit Design Handbook* states that a “comparator compares two analog signals, where one is typically a fixed reference voltage and the other is an analog signal. Ex. 21, *Analog Filter and Circuit Design Handbook* (2014) at 551. The output of the comparator has a binary (two state) output, which indicates whether the analog signal is more positive or more negative than the reference....There are numerous comparators available...” Table 16-1 lists two pages worth of various commercially available comparators. *Id.* at pp. 552-3. Fig. 16-4 also shows the same type of comparator circuitry as shown above in Figure 3 of the ’516 Patent.



Id. at 555. Likewise, the *Horowitz* textbook confirms that a POSITA understood that the plain and ordinary meaning of voltage is applicable to the description of the comparator circuitry in the claims and specification:



[A] tiny positive voltage at the $-$ input would push the output to $-E_{cc}$ volts and a tiny negative voltage at this input would push the output to $+E_{cc}$ volts. . . . You can see how the circuit in Fig. 10-12 can perform as a voltage comparator. . . . This is the basis of the voltage comparator, which simply compares the voltages at the two input terminals.

Ex. 20 at 294-96.

b. Coupling

Similarly, Claim 1 also refers to “coupling” of voltages to the comparator. The plain and ordinary meaning of coupling in this context involves coupling energy, here, voltage as a physical

phenomenon present on the inputs to the comparator. For example, the *Dictionary of Electronics* defines coupling as “the interaction between two circuits **so that energy is transferred** from one to the other.” Ex. 22, *Dictionary of Electronics* (1998) at 105; *see also* Ex. 23, *Fiber Optics Standard Dictionary* (1997) at 172 (“coupling” is “the **transfer of energy** from one conductive or dielectric medium, such as an optical waveguide or wire, to another, including fortuitous transfer.”)

The term coupling is thus consistent with Cisco’s proposed construction of voltage as a physical electrical property. In other words, the comparators would not receive two voltage values in the form of a number (e.g. 4 volts), but rather some magnitude of electrical pressure is coupled to one input of the comparator, with the comparator able to sense whether that electrical pressure is larger or smaller than an electrical pressure coupled to the comparator’s other input.

In sum, Cisco’s construction of voltage is indisputably correct technically, true to the intrinsic record, helpful and easily understood by a lay juror, and avoids unduly broad and confusing use of jargon in ways inconsistent with the specification and claims. Accordingly, Cisco’s proposed construction should be adopted.

V. CONCLUSION

For the foregoing reasons, Cisco respectfully request that its positions be adopted.

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Therefore, this document was served on all counsel who are deemed to have consented to electronic service on March 26, 2021.

/s/Eric H. Findlay
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